FREQUENTLY ASKED QUESTIONS

How do deep injection wells work?

Deep injection wells are constructed of multiple layers of high-integrity, continuous protective steel and concrete casings, which are embedded into the dense protective confining-layer rock formations. The deeper injection formations, which lie beneath these confining layers, provide enormous volumes of capacity to accept and safely isolate the injected liquids from the environment. The liquid is injected through tubing which runs through the center of the protective casings. A pressurized fluid surrounds the injection tubing between the inner casing, providing another layer of protection and integrity monitoring.

Is our drinking water safe?

Yes. The Mount Simon sandstone formation, where the liquid will be injected, is located over a mile below the ground surface and our area groundwater aquifers. This formation is thousands of feet below the oil and gas reserves that exist in this region. Just like these natural resources and the salty fluids in the Mt. Simon sandstone, the injection fluids will be trapped deep in the earth, contained by thousands of feet of confining rock and isolated from the groundwater. The well casing will be constructed and monitored to prevent any potential migration of these fluids upward toward our groundwater.

How far will the injection fluid travel?

Due to the pressure at these depths, the injection material will not migrate beyond the Autumn Hills boundary. The volume of pore space beneath the 400-acre landfill property is over 13 billion gallons. This would support more than 1,000 years of capacity.

What is Autumn Hills proposing to inject?

Autumn Hills has submitted a permit application to both the Michigan Department of Environmental Quality and the U.S. Environmental Protection Agency for the injection of landfill leachate, landfill gas condensate and well maintenance fluids generated at Autumn Hills. Small amounts of fluids to prevent scaling and biological growth would be added to prevent potential plugging in the well and formation. No other liquids from other sources are included within this permit application.

What is landfill leachate?

Landfill leachate is generated as precipitation and liquid within the waste flows downward through the trash to the bottom of the landfill. As this liquid migrates through the trash, it dissolves soluble materials within the waste and soil and combines with waste decay fluid. The leachate is collected through a series of liners and pipelines and sent off site to a wastewater treatment plant. Landfill leachate is 98 percent water, and the other 2 percent is made up of mostly salts (sodium, potassium, chloride), metals (iron, manganese), nutrients (ammonia), and trace levels of heavy metals (lead, nickel) and volatile organic compounds (VOC's) such as benzene, xylene and acetone.

WASTE MANAGEMENT

How does Autumn Hills currently manage leachate?

For the first 25 year of operation, leachate from Autumn Hills was discharged through the local sanitary sewer to the City of Holland wastewater treatment plant, in accordance with local permits. In late 2017, the sanitary sewer was rerouted to the City of Zeeland plant, which is a much smaller treatment facility and doesn't have the capacity or technology to properly handle leachate from Autumn Hills. Currently, Autumn Hills is sending six to eight tanker trucks every weekday to the City of Grand Rapids, where the leachate is managed in their facility.

Is this fracking?

No. The fluids would be injected at pressures well below the formation fracturing pressures. Fracking—or fracturing—is a drilling technique, which intentionally uses high pressures to fracture the rock to create voids for the collection of trapped oil and gas.

Will this process cause earthquakes?

No. First, West Michigan is not a seismically active area. Second, the injection fluids would not be injected at a rate, pressure or within the vicinity of the earth "basement" rock to create any potential earthquakes.

How can we ensure there will not be issues with the well?

The proposed permits from the U.S. Environmental Protection Agency and Michigan Department of Environmental Quality will issue construction, operation and reporting requirements. Autumn Hills will continuously monitor the operation of the well to ensure compliance with these operating parameters. This monitoring data will be reported to the agencies, and the agencies will conduct verification inspections. Should any of the operating limits be exceeded, the well will be shut until corrected. If corrections cannot resolve the issue, the well will be properly closed according to the specified procedures in the permit.

How is the well monitored?

Autumn Hills will continuously monitor and record the Injection Rate, Injection Pressures, and the Pressure of the Annulus Fluid. System Operation and Alarms will be established to shut down the system and notify personnel if any of these operating parameters are exceeded. The Annulus Fluid fills the space between the projective casing and the injection tubing. It is maintained at a minimum pressure of 100 psi above the injection pressure. If there is an issue with the casing, injection tubing or well seal, which causes the annulus pressure to drop, the well will be shut until the issue is identified and corrected.

WASTE MANAGEMENT